

CLAIMS

What is claimed is:

1. A system to mitigate interference between high frequency and low frequency communications over a common line, comprising:
 - a detector operative to detect approximately when a change in a ringing condition associated with the common line is about to occur and provide a notification indicative thereof; and
 - a high frequency communications system associated with the common line for communication of at least one of voice and data as high frequency data via the common line, the high frequency communications system being operative to temporarily stop downstream transmission of the at least one of voice and data based on the notification so as to allow at least some of the change in the ringing condition to occur, such that interference on the downstream transmission of high frequency data due to the change in the ringing condition is mitigated.
2. The system of claim 1, further comprising a bus from which the high frequency communications system receives data for high frequency downstream transmission over the common line, the high frequency communications system temporarily refusing data from the bus in response to the notification.
3. The system of claim 2, the high frequency communications system being operative to transmit idle data cells downstream during the temporary stoppage of downstream transmission of high frequency data.
4. The system of claim 2, further comprising a Plain Old Telephone Service (POTS) system coupled to the bus to receive at least one of voice and data for transmission as low frequency data via the common line, the POTS system being operative to delay initiating the change in the ringing condition for a time period according to the notification.

5. The system of claim 4, the time period being a predetermined time period less than or equal to about thirty-two milliseconds.

6. The system of claim 4, the high frequency communications system comprising a Digital Subscriber Line (DSL) system operative to transmit and receive the at least one of voice and data as high frequency data over the common line.

7. The system of claim 6, further comprising a splitter operatively coupled to the common line and to each of the DSL system and the POTS system, the splitter operative to send and receive the high frequency data relative to the DSL system via the common line and to send and receive the low frequency data relative to the POTS system via the common line.

8. The system of claim 1, further comprising a bus from which the high frequency communications system receives at least one of voice and data signals for downstream transmission as the high frequency data over the common line, the high frequency communications system comprising at least one buffer in which received data is stored during the temporary stoppage of downstream high frequency data.

9. The system of claim 1, the high frequency communications system imposing the temporary stoppage of downstream high frequency data for a time period sufficient to allow the change in the ringing condition to occur.

10. The system of claim 9, the time period being a predetermined fixed duration.

11. The system of claim 9, the high frequency communications system having at least two operating modes, the high frequency communications system controlling the duration of the time period according to in which of the at least two operating modes the high frequency communications system is operating.

12. The system of claim 11, the at least two operating modes comprising a fastpath mode and an interleave mode.

13. The system of claim 1, the detector being implemented as computer executable instructions in a controller of associated carrier equipment that also includes the high frequency communications system, the controller being operative to control a plurality of Digital Subscriber Line systems, the high frequency communications system being one of the plurality of Digital Subscriber Line systems.

14. The system of claim 1, the detector being implemented as computer executable instructions in a Plain Old Telephone Service (POTS) system of associated carrier equipment that also includes the high frequency communications system, the detector of the POTS system being coupled to communicate the notification to the high frequency communications system.

15. The system of claim 14, the high frequency communications system and the POTS system being implemented in an integrated hardware module.

16. A system to mitigate interference between high frequency and low frequency communications over a common line, comprising:

a bus for internal communications within the system;

a low frequency communications system associated with the common line and operative to receive to receive data from the bus for low frequency downstream transmission over the common line; and

a high frequency communications system associated with the common line and operative to receive data from the bus for high frequency downstream transmission over the common line, the high frequency communications system temporarily refusing data from the bus in response to a notification indicating that a change in a ringing condition associated with the low frequency downstream transmission via the common line is about to occur.

17. A system to mitigate interference between high frequency and low frequency communications over a common line, comprising:

a Plain Old Telephone Service (POTS) system associated with at least one line, including the common line, the POTS system being operative to communicate at least one of voice and data as low frequency data via the common line;

a Digital Subscriber Line (DSL) system associated with the at least one line, including the common line, the DSL system being operative to communicate at least one of voice and data as high frequency data via the common line;

a detector operative to detect approximately when a potentially disruptive change in a condition associated with the low frequency communication via common line is about to occur; and

the high frequency communications system being operative to temporarily stop downstream communication of the at least one of voice and data in response to the potentially disruptive change in the condition, such that interference on the downstream communication of high frequency data due to the change in the ringing condition is mitigated.

18. The system of claim 17, the condition comprising a POTS ringing condition associated with the common line.

19. A system to mitigate interference in downstream Digital Subscriber Line (DSL) data, comprising:

means for detecting that a change in a Plain Old Telephone Service (POTS) ringing condition associated with a telephone line is about to occur;

means for transmitting downstream DSL traffic over the telephone line;

means for temporarily stopping the means for transmitting from transmitting downstream DSL data over the telephone line in response to the means for detecting detecting that the change in the POTS ringing condition is about to occur.

20. The system of claim 19, further comprising means for delaying the change in the POTS ringing condition for a duration.

21. The system of claim 20, the means for temporarily stopping further comprising means for controlling the temporary stoppage for a time period at least equal to about the duration.

22. The system of claim 19, further comprising means for transmitting idle data cells downstream over the telephone line during the temporary stoppage.

23. A method for mitigating interference in downstream transmission of a high frequency communications signal associated with a change in a condition of a low frequency communications signal, wherein the high frequency communications signal and low frequency communications signal are transmitted concurrently over a common line, the method comprising:

detecting that the change in the condition of the low frequency communications signal is about to occur; and

temporarily stopping downstream traffic of data for a time period sufficient to allow at least some of the change in the condition to occur.

24. The method of claim 23, the change in the condition comprising a change in a ringing condition for the low frequency communications signal associated with the common line.

25. The method of claim 24, further comprising notifying a transmitter of the high frequency communications signal that a change in the ringing condition is about to occur.

26. The method of claim 25, further comprising delaying the change in the ringing condition for a duration based on the notification.

27. The method of claim 26, further comprising temporarily stopping downstream traffic of data for a time period based on the duration of the delay associated with the change in the ringing condition.

28. The method of claim 23, further comprising transmitting idle data in the high frequency communications signal during the temporary stoppage so as to maintain a high frequency data link over the common connection.

29. A main controller in a rack at a central office of a public switched telephone network programmed with computer executable instructions to implement the method of claim 23.

30. An integrated DSL-POTS system in a rack at a central office of a public switched telephone network programmed with computer executable instructions to implement the method of claim 23.